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WHOLE No. 406

ON THE FREQUENCY OF SHORT WORDS IN VERSE

A few years ago it came to my attention that some of the Roman poets use a smaller proportion of monosyllables than occur in Latin prose, while verse, in English, usually has more monosyllables than prose. It seemed worth while to determine the extent of these opposing tendencies, and to discover, if possible, the reasons for them. I have included Greek in the study; it would have been interesting to include other languages, if I could have found time to do so¹.

The results of our studies are embodied in seven Tables, which, in the interests of clearness, are given at once. The balance of the paper will consist of comments on the Tables.

TABLE I
ENGLISH WORDS

Number of Syllables	1	2	3	4	5	6	7
Gibbon, Decline and Fall . . .	59.69	19.29	12.66	6.54	1.57	.26	.. ..
Bloomfield, Study of Language . .	69.79	20.09	10.45	5.09	2.11	.38	.05
New York Times Editorials . . .	64.53	21.11	9.39	3.89	.86	.22	.. ..
Darwin, Insectivorous Plants . .	64.81	21.09	10.11	3.46	.51	.03	.. ..
Hood, Literary Reminiscences . . .	66.2	20.09	8.69	3.77	1.11	.09	.06
Goldsmith, Education . .	67.91	19.79	8.26	3.57	.47	.. ..	.. ..
Shelley, Queen Mab . . .	68.86	22.31	6.86	1.51	.46	.. ..	.. ..
Longfellow, Hiawatha . .	69.06	24.83	3.97	1.54	.6	.. ..	.. ..
Emerson, History . . .	69.68	17.77	8.20	3.54	.74	.06	.. ..
Longfellow, Evangeline . .	70.69	23.49	5.14	.69	.. ..	.. ..	.. ..
Stevenson, Ordered South . . .	70.89	19.23	6.49	2.51	.71	.17	.. ..
Carlyle, Heroes and Hero-worship . .	71.43	16.23	8.09	3.57	.63	.03	.03
Galsworthy, The Freelanders . .	71.60	20.31	5.49	1.97	.49	.11	.03
Browning, Pippa Passes (prose) . .	71.74	20	6.29	1.63	.34	.. ..	.. ..
Milton, Paradise Lost . .	72.23	19.63	6.17	1.69	.26	.03	.. ..
Hood, Miss Kilmansegg . .	74.85	19.61	4.43	.87	.18	.06	.. ..
Browning, The Ring and the Book . .	74.89	17.69	5.37	1.77	.26	.03	.. ..
Goldsmith, The Deserted Village . . .	75.59	21.45	3.69	1.16	.09	.. ..	.. ..
Goldsmith, She Stoops to Conquer . .	76.4	17.31	5.03	1.11	.14	.. ..	.. ..
Tennyson, Idylls of the King . .	79.71	16.40	3.23	.66	.. ..	.. ..	.. ..

¹ I have been assisted in gathering and arranging statistics by the members of the Classical Proseminary in Columbia University in the year 1919-1920, namely Miss Mabel L. Hart, Messrs R.L. Hunter, R.M. Mandracchia, and R.S. Marcus.

Browning, Pippa Passes (verse) . .	81.14	15.06	3.03	.71	.06	.. ..	.. ..
Tennyson, In Memoriam . .	81.46	16.26	2	.29	.. ..	.. ..	.. ..

TABLE II
GREEK WORDS

Number of Syllables	1	2	3	4	5	6	7	8	9
Aeschylus (lyrics) . . .	22.89	36.06	25.94	11.4	3.01	.6	.03	.. ..	.. ..
Sophocles (lyrics) . . .	24.85	39.45	23.63	9.88	2.03	.14	.. ..	.. ..	.. ..
Euripides (lyrics) . . .	25.17	39.23	24.29	8.91	1.89	.59	.. ..	.. ..	.. ..
Theognis . . .	25.54	41.51	22.77	7.31	2.49	.37	.. ..	.. ..	.. ..
Solon . . .	26.24	35.85	24.79	9.83	2.90	.39	.09	.03	.03
Aeschylus (trimeters) . .	29.83	39.06	16.74	9.09	2.23	.2	.. ..	.. ..	.. ..
Aristophanes (lyrics) . .	31.97	35.66	19.34	9.6	2.66	.63	.. ..	.. ..	.. ..
Sophocles (trimeters) . .	32.08	36.43	23.25	6.43	1.71	.14	.. ..	.. ..	.. ..
Euripides (trimeters) . .	32.4	37.71	20.34	7.86	1.57	.09	.03	.. ..	.. ..
Aristophanes (trimeters) .	33.66	33.71	18.54	10.4	2.49	1	.11	.09	.. ..
Lysias . . .	33.94	30	18.6	11.71	4.43	1.2	.14	.. ..	.. ..
Demosthenes . . .	34.74	31.6	18.71	9.68	3.66	1.43	.11	.06	.. ..
Plato, Apology . . .	35.71	35.57	17.31	8	2.23	1.08	.09	.. ..	.. ..
Herodotus . . .	36.11	29.03	21.17	9.63	3.11	.8	.11	.03	.. ..
Lucian, Vera Historia . .	36.74	27.37	18.51	10.97	5.08	1.28	.11	.. ..	.. ..
Thucydides . . .	37.23	26.03	19.57	11.09	4.71	1.26	.11	.. ..	.. ..
Plato, Symposium (speeches) . .	37.4	32.6	18.34	7.48	3.23	.91	.03	.. ..	.. ..
Plato, Charmides (dialogue) . .	40.14	34.77	15.8	7.14	1.58	.43	.14	.. ..	.. ..
Theophrastus, Historia Plantarum . .	40.8	30.48	17.11	8.11	2.91	.51	.03	.. ..	.03

TABLE III
LATIN WORDS

Number of Syllables	1	2	3	4	5	6	7	8	9
Seneca, Tragedy (lyrics) . .	14.08	45.61	33.22	6.97	.06	.06	.. ..	.. ..	.. ..
Vergil, Georgics . . .	18	39.06	32.22	9.75	.91	.06	.. ..	.. ..	.. ..
Seneca, Tragedy (trimeters) . .	18.46	44.57	30.69	6.17	.11	.. ..	.. ..	.. ..	.. ..
Horace, Odes . . .	18.66	37.94	33.40	8.86	1	.14	.. ..	.. ..	.. ..
Vergil, Aeneid . . .	18.77	37.08	32.66	10.37	1.06	.06	.. ..	.. ..	.. ..
Tacitus, Annals . . .	19.77	27.51	28	18.57	5.17	.91	.06	.. ..	.. ..
Horace, Epodes . . .	20.2	37.2	31.53	8.67	2.30	.06	.03	.. ..	.. ..
Livy . . .	20.46	33.86	28.60	13.31	3.31	.43	.03	.. ..	.. ..
Vergil, Eclogues . . .	21.37	40.28	30.66	6.94	.71	.03	.. ..	.. ..	.. ..
Lucretius . . .	21.68	36	31.86	9.2	1.2	.06	.. ..	.. ..	.. ..
Pliny, N. H. . .	21.74	29.09	32.14	13.03	3.57	.34	.09	.. ..	.. ..
Martial . . .	24.17	40.31	27.11	6.63	1.60	.17	.. ..	.. ..	.. ..
Caesar, B. G. . .	24.46	27.77	25.54	15.49	6.29	.46	.. ..	.. ..	.. ..
Horace, Sermones . . .	26.37	36.56	29	7.11	.91	.03	.. ..	.. ..	.. ..
Seneca, De Tranquillitate Animi . . .	26.91	29.49	23.26	14.4	4.71	1.03	.2	.. ..	.. ..
Nepos . . .	27.71	32.23	29.40	5.97	5.09	1.23	.17	.. ..	.. ..
Cicero, De Republica . . .	28.29	29.74	23.63	13.6	3.86	.71	.14	.03	.. ..
Cicero, Catilinenses . .	29	29.91	23.31	13.34	3.80	.57	.06	.. ..	.. ..
Caelius (Ad Fam. 8) . . .	30.03	30.51	21.46	13.2	3.97	.77	.06	.. ..	.. ..
Plautus, Cicero, Ad Atticum . .	30.8	35.81	23.3	8.64	1.27	.17	.. ..	.. ..	.. ..
Terence . . .	31.54	31.49	23.71	10.29	2.26	.63	.09	.. ..	.. ..
Terence . . .	34.54	34.51	22.57	7.06	1	.31	.. ..	.. ..	.. ..

TABLE IV
ENGLISH MONOSYLLABLES

	Significant
Gibbon, Decline XXI	9.97
New York Times, Editorials	14.91
Bloomfield, Study of Language	15.13
Hood, Literary Reminiscences	16.62
Goldsmith, Education	16.77
Darwin, Insectivorous Plants	17.82
Stevenson, Ordered South	19.37
Carlyle, Heroes	20.79
Emerson, History	22.58
Goldsmith, She Stoops to Conquer	23.38
Longfellow, Hiawatha	23.48
Longfellow, Evangeline	23.75
Galsworthy, Prelands	23.99
Browning, Pippa (prose)	25.75
Milton, Paradise Lost	26.36
Shelley, Queen Mab	27.61
Hood, Kilmansegg	30.61
Tennyson, Idylls of the King	30.93
Tennyson, In Memoriam	32.34
Browning, The Ring	34
Browning, Pippa Passes (verse)	35.05
Goldsmith, Deserted Village	35.07
Goldsmith, Deserted Village	Insignificant
Browning, The Ring	40.52
Shelley, Queen Mab	40.89
Hood, Kilmansegg	41.25
Longfellow, Hiawatha	44.24
Milton, Paradise Lost	45.58
Browning, Pippa Passes (prose)	45.87
Browning, Pippa Passes (verse)	45.99
Bloomfield, Study of Language	46.65
Longfellow, Evangeline	46.94
Darwin, Insectivorous Plants	46.98
Emerson, History	47.10
Galsworthy, The Prelands	47.61
Tennyson, Idylls of the King	48.78
Tennyson, In Memoriam	49.12
Hood, Literary Reminiscences	49.58
New York Times, Editorials	49.62
Gibbon, Decline and Fall	49.72
Carlyle, Heroes	50.64
Goldsmith, Education	51.13
Stevenson, Ordered South	51.32
Goldsmith, She Stoops to Conquer	53.02

TABLE V
GREEK AND LATIN MONOSYLLABLES
GREEK

	Insignif-icant	Signif-icant
Aeschylus (lyrics)	21.40	1.49
Aeschylus (trimeters)	21.79	1.10
Euripides (lyrics)	23.91	1.26
Theognis	24.47	1.17
Euripides (trimeters)	30.88	1.52
Aristophanes (trimeters)	32.68	.98
Herodotus	35.32	.79
Plato, Symposium	36.29	1.12
Thucydides	36.63	.60
Theophrastus	40.39	.41

LATIN

	Insignif-icant	Signif-icant
Seneca, Tragedy (lyrics)	13.42	.66
Vergil, Georgics	16.94	1.10
Vergil, Aeneid	17.34	1.43
Lucretius	19.86	1.82
Vergil, Bucolics	20.32	.91
Pliny, N. H. 16	20.83	.91
Martial	22.57	1.60
Seneca, De Tranquillitate Animi	25.70	1.21
Plautus	28.92	1.88
Cicero, Ad Atticum	30.37	1.17
Terence	31.57	2.97

TABLE VI
GREEK AND LATIN DISSYLLABLES
Greek

Thucydides	26.03
Lucian, Vera Historia	27.37
Herodotus	29.03
Lysias	30
Theophrastus	30.48
Demosthenes	31.60
Plato, Symposium	32.60
Aristophanes (trimeters)	33.71
Plato, Charmides	34.77
Plato, Apology	35.57
Aristophanes (lyrics)	35.66
Solon	35.85
Aeschylus (lyrics)	36.06
Sophocles (trimeters)	36.43
Euripides (trimeters)	37.71

Aeschylus (trimeters)	39.06
Euripides (lyrics)	39.23
Sophocles (lyrics)	39.45
Theognis	41.51

Latin

Tacitus, Annals	27.51
Caesar, B. G.	27.77
Pliny, N. H.	29.09
Seneca, De Tranquillitate Animi	29.49
Cicero, De Republica	29.74
Cicero, Cat.	29.91
Caelius (Fam. 8)	30.51
Cicero, Ad Atticum	31.49
Nepos	32.23
Livy	33.86
Terence	34.51
Plautus	35.81
Lucretius	36
Horace, Sermones	36.56
Vergil, Aeneid	37.08
Horace, Epodes	37.2
Horace, Odes	37.94
Vergil, Georgics	39.06
Vergil, Eclogues	40.28
Martial	40.31
Seneca, Tragedy (trimeters)	44.57
Seneca, Tragedy (lyrics)	45.61

TABLE VII
GREEK AND LATIN SIGNIFICANT DISSYLLABLES
Greek

Lysias	11.43
Demosthenes	11.94
Thucydides	12.52
Plato, Apology	13.37
Herodotus	13.87
Lucian, Vera Historia	14.01
Plato, Charmides	14.92
Theophrastus	16.88
Plato, Symposium	17.5
Aristophanes (lyrics)	17.9
Aristophanes (trimeters)	18.65
Solon	24.51
Euripides (trimeters)	24.93
Sophocles (trimeters)	25.59
Aeschylus (trimeters)	25.86
Sophocles (lyrics)	26.59
Aeschylus (lyrics)	27.23
Euripides (lyrics)	28.21
Theognis	28.23

Latin

Cicero, Ad Atticum	16.75
Pliny, N. H.	17.29
Caelius (Ad Fam. 8)	17.39
Tacitus, Annals	18.16
Seneca, De Tranquillitate Animi	18.79
Nepos	19.08
Caesar, De Bello Gallico	19.77
Cicero, De Republica	20.51
Cicero, Cat.	22.01
Plautus	23.35
Terence	24.16
Livy	24.24
Horace, Sermones	27.93
Lucretius	28.3
Vergil, Aeneid	31.74
Horace, Epodes	31.95
Vergil, Eclogues	32.22
Horace, Odes	33.39
Vergil, Georgics	34.37
Martial	34.83
Seneca, Tragedy (trimeters)	40.38
Seneca, Tragedy (lyrics)	42.65

It was of course difficult to decide whether such locations as *il's*, *thirty-six*, *wood-shed*, *tantum modo*, *virumque*, *ἀνδρα τε*, and *καγαθός* consist of one word or of two, and whether an elided syllable should be counted or not. Since it would have been difficult to adopt a consistent system for all three languages, and since the comparisons were to be made only within the limits of a single language (English verse was to be compared with English prose, etc.), it was decided to follow the usual orthography of each language. The several orthographic systems are, to be sure, full of inconsistencies, and they are not based upon any scientific principle. Still, each of them is probably for the most part in accord with the linguistic conscious-

ness of the speakers, and this is the ultimate criterion.

Furthermore, the study is concerned, not with the actual proportion of monosyllables used in any particular document, but with the variation in this respect between several documents. Consequently it seemed less important to fix quite satisfactory divisions between words than to be consistent within the limits of each language. As an aid to such consistency, in all cases of doubt the larger number of words and the larger number of syllables have been preferred. Elided syllables have always been counted, Greek crasis has been disregarded (*καὶ ἄγαθός* has been read as *καὶ ἄγαθός*), and English *it's*, *'tis*, etc., have been treated as if uncontracted. In all these cases the fuller forms are appropriate to some styles or to some positions, and in Greek and Latin we can no longer determine the limits of the phenomena.

We have tabulated about 3,500 words of each document studied, except that this figure has been exceeded in a few cases. They are usually taken from the beginning of the document, except that prefaces and other introductory matter that seemed likely to differ in style from the body of the work have been passed over. In several instances further definition of the passages studied is necessary, as follows: Gibbon, *Decline and Fall*, Chapter XXI; New York Times, Editorials of February 6, 1920; Seneca, *Medea*, *Hercules Furens*, *Troades*; Pliny, *Naturalis Historia*, Book 16; Plautus, *Menaechmi*, *Rudens* (3,500 words of each); Cicero, *Ad Atticum*, Book 8, Letters 2-10, Book 9; Terence, *Andria*; Aeschylus, *Supplices*, *Persae*; Sophocles, *Antigone*, *Ajax*; Euripides, *Iphigenia in Tauris*, *Medea*; Aristophanes, *Aves*, *Nubes*; Lysias, *Jebb's Selections*; Demosthenes, *De Corona*; Herodotus, Book 2; Theophrastus, *Historia Plantarum*, Book 2.

Tables I to III give the proportion of words of the several lengths in a number of passages of English, Greek, and Latin, respectively. The documents are arranged according to the proportion of monosyllables they contain. For convenience bold-faced type is used for verse in these tables and also in those that follow.

As to English our preliminary impression is rather strikingly confirmed. In prose the percentage of monosyllables varies from 59.69 to 76.4, in poetry from 68.86 to 81.46. Except for Goldsmith's *She Stoops to Conquer*, all the prose studied shows less than 72 per cent. of monosyllables; and, except for Longfellow and Shelley, all the verse studied shows more than 72 per cent. of monosyllables. Particularly striking is the difference between the prose and the verse parts of Browning's *Pippa Passes* (71.74 and 81.14 respectively); and between Hood's *Essay on Education* and his burlesque poem (66.2 and 74.85 respectively).

In Latin and Greek the poets are in general at the head of the list, and the prose writers below. In Greek no exception to the tendency has been discovered; the division between verse and prose falls between the 33.66 per cent. of monosyllables in Aristophanes's trimeters and the 33.94 per cent. in Lysias.

As to Latin there are five exceptions. It is not surprising to find that Livy's poetic prose and Tacitus's abbreviated style are similar to verse. Very surprising is the position of Pliny's *Natural History* above Martial.

Strangest of all, Terence stands at the very bottom of the list and Plautus only a little higher. Since the letters of Cicero and Caelius stand next to the comedies, it is evident that the colloquial style accounts for the large proportion of monosyllables in all four. It is therefore probably significant that in Table II Aristophanes's trimeters stand lowest of all the verse. Furthermore, one of the anomalies observed in Table I was that Goldsmith's comedy showed an unexpectedly high percentage of monosyllables. Here, then, we seem to have a point of similarity between Greek, Latin, and English. Familiar speech in all three favors monosyllables.

Now, familiar speech makes large use of interjections, pronouns, prepositions, conjunctions, the copula, and of such adverbs as *now*, *then*, *here*, *there*, that is, of words which have in themselves small significance, but which represent something in the situation or in the context, or mark the relationship of other words (and ideas) to one another; and many such words are monosyllabic in all the languages under consideration. It therefore seems worth while to divide our monosyllables into two classes, which we may call significant monosyllables and insignificant monosyllables.

In Table IV the English documents are arranged first according to the proportion of their significant monosyllables. As we expected, Goldsmith's comedy now stands among the other prose. Furthermore, Shelley stands with the verse, and Longfellow is separated from the other poets only by Galsworthy and the prose parts of Browning's *Pippa Passes*. It is clear that the predominance of monosyllables in English verse is due to a preference for significant monosyllables.

In the second part of Table IV the same documents are arranged according to their proportion of insignificant monosyllables. Here Goldsmith's comedy stands at the bottom of the list, where Terence stands in Table III. In general, verse is at the top and prose at the bottom, as we found to be the case in our study of Greek and Latin monosyllables. The technical prose falls in the middle of the list, where Pliny's *Natural History* stands in Table III. It therefore seems probable that in Greek and Latin the insignificant monosyllables so far outnumber the significant that they determine the proportion of monosyllables in general.

That such is actually the case appears from Table V, in which certain of the Greek and the Latin documents are arranged according to their proportion of insignificant monosyllables. There are no essential alterations from Tables II and III. Furthermore, the proportion of significant monosyllables is too small to affect the totals appreciably. It appears that the Greek and the Roman poets (except the comic poets) avoided insignificant monosyllables as

far as could be done without sacrificing clearness. The second part of Table IV indicates that certain English poets do the same thing, but Tennyson apparently did not do it.

Did the Greek and the Roman poets prefer short words with high significance when the resources of their language permitted them a choice? In Table VI our Greek and Latin documents are arranged according to their proportion of dissyllables. Both columns show a striking resemblance to Table I, where the English documents are arranged according to their proportion of monosyllables. In all three, prose stands at the top and verse at the bottom. All are headed by a historian, and technical prose is near the top in all. For Latin dissyllables the extreme range (27.51 per cent. to 45.61 per cent.) is almost as great as for English monosyllables (59.69 per cent. to 81.46 per cent.). In a word, Greek and Latin dissyllables behave about as English monosyllables. It seems probable that the Greek and the Roman poets favored significant dissyllables just as English poets favor significant monosyllables.

Table VII, which separates the significant from the insignificant dissyllables, proves that this is true. Just as English significant monosyllables (Table IV) have a greater range of variation than English monosyllables in general (25.1 per cent. instead of 21.57 per cent.), so Latin significant dissyllables show a range of 25.85 per cent., while Latin dissyllables in general have a range of only 18.11 per cent. In Greek the change is small, but in the same direction (16.8 per cent. instead of 15.48 per cent.). Changes in the relative positions of the several documents are unimportant. It is interesting to note that Livy and the comic poets exchange places, so that the former now stands with the poets and the latter with the prose writers; but both in Table VI and in Table VII the three writers show almost identical figures.

English, Greek, and Latin writers of verse (1) usually favor short words of distinct and clear significance, and (2) omit grammatical machinery (prepositions, conjunctions, pronouns, etc.) as far as the requirements of clearness and idiom permit, except that (3) works of a colloquial tone require a large proportion of words of the latter class. The whole matter seems to be a phase of the laconic tendency of verse. The contrast, with which we started, between English verse and classical verse in regard to monosyllables is due to the fact that few Greek and Latin monosyllables have a distinct meaning of their own².

EDGEWATER, N. J.

E. H. STURTEVANT

REVIEWS

Translations from Lucretius. By R. C. Trevelyan, London: George Allen and Unwin,

²We have collected a few statistics, on Italian, which indicate that that language stands midway between English and the classical tongues in regard to the nature of its monosyllables and dissyllables. The preference of Italian poets for short words of high significance is evident, but our material is too scanty to show the other two tendencies mentioned above.

Ltd. (1920). Pp. 114. 4sh., 6d. (in paper covers).

The student of Lucretius had available for a long time but a single translation in English, that by H. A. J. Munro. Later, in 1910, came the translation by Cyril Bailey (Oxford University Press), in the Oxford Library of Translations (for a partial list of the books in this Library see THE CLASSICAL WEEKLY 9.49).

In 1916, Mr. William Ellery Leonard published a metrical translation of Lucretius (for a review of this book, by Professor R. B. English, see THE CLASSICAL WEEKLY 13.101-102). In 1920, Messrs. George Allen and Unwin, Ltd., published Translations from Lucretius, by R. C. Trevelyan (114 pages). Mr. Trevelyan had previously published an essay entitled Lucretius on Death. The translation before us does not give versions of the whole *De Rerum Natura*, but only of selections, as follows: 1.1-328; 2.991-1174; 3.1-160, 830-1094; 4.962-1287; Book V, complete; 6.1-95.

As the first specimen of Mr. Trevelyan's translation I give his rendering of that extraordinary passage, 3.830-868, in which Lucretius sums up so triumphantly all that he has said up to 3.829 (35.36):

Death then is nothing to us, nor one jot
Does it concern us, since the nature of mind
Is thus proved mortal. And as in times long past
We felt no unhappiness when from every side
Gathering for conflict came the Punic hosts,
And all that was beneath the height of heaven,
Shaken by the tumult and dismay of war,
Shuddered and quaked, and mortals were in doubt
To whose empire all human things would fall
By land and sea, so when we are no more,
When body and soul, whereof we were composed
Into one being shall have been divorced,
'Tis plain nothing whatever shall have power
To trouble us, who then shall be no more,
Or stir our senses, no, not if earth with sea
In ruin shall be mingled, and sea with sky.
And even though the powers of mind and soul
After they have been severed from the body
Were still to feel, yet that to us is nothing,
Who by the binding marriage tie between
Body and soul are formed into one being.
Nor if Time should collect our scattered atoms
After our death, and should restore them back
To where they are now placed, and if once more
The light of life were given us, not even that
Would in the least concern us, once the chain
Of self-awareness had been snapped asunder.
So too now what we may have been before
Concerns us not, nor causes us distress.

I give now Mr. Trevelyan's rendering of 3. 854-868:
For when you look back on the whole past course
Of infinite time, and think how manifold
Must be the modes of matter's flux, then easily
May you believe this too, that these same atoms
Of which we are now formed, have often before
Been placed in the same order as they are now.
Yet this can no remembrance bring us back,
For a break in life has since been interposed,
And all our atoms wandering dispersed
Have strayed far from that former consciousness.
For if a man be destined to endure
Misery and suffering, he must first exist
In his own person at that very time
When evil should befall him. But since death